Many issues regarding the preservation of natural resources in parks do not have easy answers. Meeting air quality mandates, for example, involves multiple parties, each with an interest that may need to be considered. Other issues, such as the overabundance of white-tailed deer, are so emotional that despite the application of scientific information, public opinion may have a stronger bearing on the outcome. In each case, resource specialists play a critical role in sharing their expertise with managers to guide the National Park Service through the complex process of resolution. Often, the law must be interpreted or applied. Interests of other affected parties need to be evaluated. International negotiations may be needed. Stakeholders, including the public, may need to participate. At times, expertise or precedent may not exist within the Park Service, making the process of resolving an issue particularly uncertain. Resolution may take years and the outcome may not be the most desired for natural resource preservation in parks. In 1997, park managers had to deal with these realities of natural resource management on several fronts.

Clean air versus prescribed fire: A burning dilemma

by Jeff Manley

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Public land managers in the Sierra Nevada (California), including those at Sequoia and Kings Canyon National Parks, are increasingly being squeezed between the need to increase prescribed burn programs to meet ecosystem health and hazard fuel objectives, and the need to maintain healthy air quality. The giant sequoia *(Sequoiadendron gigantea)* is dependent on fire for reproduction, and much of the park vegetation consists of fire-adapted species that have steadily degraded due to fire exclusion for the past 90 years. However, the parks are designated Class I areas under the Clean Air Act, affording them greater legal protection for air quality. They are also situated at the southern end of the San Joaquin Valley, a heavily polluted area that exceeds the National Ambient Air Quality Standard (a human health standard) for fine airborne particles.

In 1994, the parks began to significantly increase the size and scope of their joint fire management program to address the critical backlog of hazard fuel and ecosystem health burning projects. At the same time, adjacent federal land managers, particularly the USDA Forest Service, also began to take serious measures to increase their burn programs to meet resource objectives. Altogether, the federal agencies were proposing to increase burn activity up to five times recent levels, which could seriously hamper the efforts of the local air quality district to meet its responsibility to the public and the Environmental Protection Agency to reduce fine particulate levels.

During 1997, Sequoia and Kings Canyon took several steps to address the conflict, including beginning to develop a comprehensive smoke management plan. The

Where there's smoke, there's fire—and the potential for air quality standards violations in Sequoia and Kings Canyon National Parks (California). Legal requirements for the maintenance of healthy air and the ecological need for fire in maintaining a healthy forest present a problem with no simple solution. During 1997, managers from the park began developing a smoke management plan that addresses the dilemma.

Tony C. Caprio

(Both) Sequoia and Kings Canyon National Parks

plan minimizes smoke through careful timing of burns during favorable wind and fuel moisture conditions. It also provides for smoke monitoring in sensitive areas to document impacts and provides a basis for health advisories if needed. A public information program is designed to give early warning to sensitive individuals and to explain to local communities the need for the burn programs.

The parks also joined with the San Joaquin Unified Air Pollution Control District and representatives from other federal and state land management agencies to form the Interagency Smoke Advisory Council, whose purpose is to define the common issues and to work together to find solutions. The group drafted a memorandum of understanding that provides a framework for cooperation in meeting the dilemma head-on. The agreement recognizes the need for increased burning, and incorporates the five-fold increase in burning. It also includes a work plan (under development) that will ultimately become the best available control method required by the fine particulate standard.

The group has also coordinated other actions to manage the smoke-air issues. These include the development of software to track all burns within the area and the development of air quality monitoring standards and protocols. Based on fuels to be burned, an emissions database allows evaluation of the effects of a prescribed burn or alternatives, such as suppression (which can lead to larger, uncontrolled fires), on air quality.

While these cooperative activities have yet to provide a perfect solution to the conflict between the fire programs and preservation of air quality, they have moved all participants forward in understanding the issues, identifying strategies, and taking steps to manage the issues creatively and cooperatively.

A prescribed burn research plot at Sequoia known as Upper Tharp's shows some of the effects of fire on the forest. Before the burn (above), fuel loads are high and little tree regeneration is evident. Four years after the burn (right), fuels are reduced and trees are resprouting.

Voyageurs National Park

Lost Bay, a wildlife protection area within Voyageurs, shows evidence of snowmobile use despite posted notices requesting visitors to voluntarily stay out during the 1996-97 winter season. Monitoring data suggest that wolves do not use frozen bays in the presence of snowmobiles.

Preservation & Law

Voyageurs challenge: Protect wildlife and provide visitor access

by Jim Schaberl

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For almost a decade, Voyageurs National Park (Minnesota) has struggled to come up with a management plan that protects wildlife habitat while providing snowmobile access to frozen lakes. The park's efforts have been hampered by controversy, litigation, and a lack of scientific information. Planned biological and social science research may provide further insight on wolf-human interactions, but the complexity of the issue continued to challenge NPS scientists and managers during 1997.

In Voyageurs, approximately 110 miles of groomed snowmobile trails provide access to over 80,000 acres of frozen lake surface (nearly one-third of the park). A proposal for a new cross-park snowmobile trail in the park's 1989 trail plan (which was never implemented) triggered both environmental compliance and legal challenges concerning the effects of visitor activity on park wildlife, particularly the threatened gray wolf and Bald Eagle. In addition to providing seasonal nesting and foraging areas for Bald Eagles, the windswept frozen lakes appear to provide an advantageous surface for wolves to forage for deer and moose. Anecdotal evidence indicates that wolves have abandoned captured prey when snowmobiles approached some areas. This information raised a concern of the cumulative effects of repeated disturbances over a winter season on the well-being of wolves, particularly during seasons of reduced prey.

In 1989 and 1991, the U.S. Fish and Wildlife Service (USFWS) engaged the park in an Endangered Species Act Section 7 Consultation and issued a biological opinion on the effects of human activity on threatened species. In accordance with that opinion, Voyageurs closed 17 lake bays (or approximately 8% of the area formerly open) to snowmobiles in 1992. The Minnesota United Snowmobilers sued, challenging the authority for closures and claiming the park and USFWS lacked evidence of harm to the wolves. (The suit did not contest the

park closures surrounding Bald Eagle nests.) In January 1996, the district court remanded the case to the Department of the Interior with direction to obtain more information on wolf-human interaction and ordered the bays opened.

That same year, the park evaluated four years of data from the aerial monitoring of bay closures. Wolf and snowmobile tracks were frequently seen in many bays, but the patterns appeared to indicate exclusive use; that is, wolf activity did not occur in the same time intervals as when snowmobilers used the closed bays. Park managers proposed some of the 17 bays should be closed for the 1996-97 season in light of the wolves' apparent avoidance of human activity, despite the judge's ruling. Following a series of public meetings with intense political and public debate, 11 of the 17 bays were posted as wildlife protection areas and visitors were asked to voluntarily avoid them. Observation

Voyageurs National Park

Snowmobiling and wolf protection are at the heart of a long-standing dispute over winter use in Voyageurs National Park (Minnesota). During 1992, the park closed 17 frozen lake bays to snowmobiling, resulting in a lawsuit brought by the Minnesota United Snowmobilers.

showed that voluntary compliance did not work; in some cases, more snowmobile activity took place in the protection areas than areas open to winter use.

In 1997, an appeal by a coalition of environmental groups resulted in the district court of appeals reversing the lower court's decision. The court affirmed National Park Service authority to manage for wildlife on the best available information. Existing information will be used to justify 1998 closures to protect all wildlife, including wolves. To unravel the intricacies of this issue, additional studies will begin in 1998. Biological research will assess wolf population demographics and the influence of visitor activities on individual wolf movements and behavior. To address long-standing disputes with various segments of the public, social scientists will survey visitor attitudes and perceptions toward NPS mandates and assemble focus groups to attempt conflict resolution.

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Agreeing to study bison movements for up to three years, Yellowstone National Park settled a lawsuit in October brought over the effects of winter use and road grooming on wildlife. Together with Grand Teton National Park and John D. Rockefeller, Jr., Memorial Parkway, Yellowstone will prepare a new winter use plan and environmental impact study. Some scientists have proposed that the packed roads may enable bison to save energy, increase in number over several years, and wander from the park in search of winter range. During the severe winter of 1996-97, nearly 1,100 bison were slaughtered outside of the park for fear of spreading brucellosis to cattle.

Mining in wilderness?

by Julia Brunner

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As contradictory as it seems, the Wilderness Act of 1964 allows commercial enterprises, such as mining operations, associated structures and access roads, to occur in wilderness—including national park system wilderness—if part of a preexisting private right. The National Park Service first confronted this dichotomy several years ago when the owner of patented mining claims in North Cascades National Park (Washington) wilderness requested permission for motorized access to his claims. Based on its interpretation of the Mining Law of 1872 and the Wilderness Act, the Park Service denied the request. Today, the Park Service must decide whether to approve a proposal to reopen an inactive underground talc mine in Death Valley National Park (California) wilderness. Intense public scrutiny of this proposal forced the park, the Pacific West Region and the NPS Geologic Resources Division to spend much of 1997 analyzing the legal authorities and agency policies applicable to mining in park wilderness.

Geologic Resources Division, John Burghardt

Located in designated wilderness at Death Valley National Park (California), this talc deposit (diagonal white layer) may once again be mined. The Wilderness Act allows mining in wilderness under certain conditions, and the National Park Service is evaluating a proposal to reopen the inactive underground mine.

The first step for any mining proposal, including proposals in wilderness, is verification that the owner possesses a preexisting right to mine. On unpatented mining claims (the owner does not own the surface of the land), this means that NPS mineral examiners must conduct an exacting examination to determine whether the claims are "valid;" that is, the mineral deposit would support a profitable mining operation. The examination of the Death Valley talc claims found the claims valid. Owners of patented mining claims (the owner owns the surface, in addition to the right to extract minerals) have already passed a validity examination, but they must demonstrate clear chain of title.

To eliminate the threats posed by mining operations to wilderness character, NPS Management Policies (1988) require park managers to "seek to acquire" preexisting mining rights in wilderness. If limited budgets render acquisition infeasible, the Code of Federal Regulations (36 CFR Part 9A—minerals management regulations) must be applied to the operation. The Park Service has concluded—with Office of the Solicitor's concurrence—that proposed mining operations in units of the national park system can not lawfully be denied simply because of the land's status as wilderness. Instead, mitigation measures or outright denials of the proposed operation must be based on well-documented projections of resource impacts identified through the NEPA (National Environmental Policy Act) process, and imposed through the Part 9A regulations so as to preserve the wilderness character of the area. Obviously, this is a difficult task that demands substantial staff time and resources. To assist in this effort, the forthcoming NPS Director's Order on wilderness management will include minerals management guidance.

If 1997 was any indication, the Park Service's handling of mining proposals in wilderness will continue to be conducted under the critical eye of both pro-mining and environmental organizations. Several rules of thumb emerged in 1997, including the need to: (1) verify property ownership, (2) become familiar with the pertinent laws and regulations, (3) analyze all environmental impacts, and (4) document compliance with applicable laws, regulations, and policies. Following these steps should enable the National Park Service to withstand criticism and effectively contend with the hundreds of mining claims still remaining in park wilderness, particularly in the California desert.

Geologic Resources Division, John Burghardt

A headframe and an ore storage bin are reminders of some of the aboveground activity associated with past underground talc mining. If approved, the proposed mine must comply with federal requirements so as to preserve the wilderness character of the area.

Big Bend National Park, Jeff Selleck

Classic scenic views, such as this of the Chisos Mountains, have been diminished in Big Bend National Park (Texas) on account of air pollution. Cooperation between the National Park Service and Mexico is aimed at identifying the regional sources responsible for air quality degradation at the park.

Issue Update

Tracing the sources of Big Bend's air pollution

by Miguel Flores

During 1996, the National Park Service with the U.S. Environmental Protection Agency (EPA) and Mexico's Procuraduría Federal de Protección al Ambiente (PROFEPA) investigated the causes of poor visibility at Big Bend National Park (Texas). As part of this investigation, the Park Service and PROFEPA coordinated a joint U.S.-Mexico preliminary fine-particle field sampling study conducted during September and October of that year over a large region in northern Mexico and southern Texas. Recent visibility data collected at the park show visibility conditions worsening over the last several years. Fine particles, particularly sulfates, are the primary cause of the regional haze causing visibility degradation there.

In 1997, United States and Mexican environmental scientists completed the laboratory analysis of samples from the 19 sites deployed during the 1996 study. The analysis of sample results showed that sources in both the United States and Mexico are responsible for Big Bend's visibility problem. However, due to the limited duration of the preliminary study (five weeks) and the season in which it was conducted, scientists were unable to determine how much and how frequently each of the source regions identified contributed to the park's visibility problem. To determine the contributions from specific sources and source regions impacting Big Bend more precisely, the U.S. and Mexico have agreed to conduct more intensive studies, now scheduled for the summer-fall of 1999. The results of the preliminary study, which provided valuable information on pollution gradients across northern Mexico and southern Texas, will be used to design these future studies. The studies are likely to include the release of inert tracers from several sources (or regions) in the U.S. and Mexico. The issue of Big Bend's air quality will be tracked closely as part of the U.S.-Mexico Border XXI Program, which focuses on environmental problems along the U.S.-Mexico border.

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Two California parks experienced ozone concentrations during 1997 that exceeded the National Ambient Air Quality Standard. Joshua Tree National Park exceeded the standard four days each in May and July and one day each in June and August; Sequoia and Kings Canyon National Parks exceeded the standard one day each in May and June. These episodes are attributed to pollution blown in from urban areas.

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Legislation Update

International site recognitions

by Jared Ficker

Legislation limiting international recognition of U.S. sites was addressed in both authorizing and appropriations processes in Congress during 1997. The American Land Sovereignty Protection Act (H.R. 901) passed the U.S. House of Representatives in October. Nearly identical to its predecessor legislation in the 104th Congress (H.R. 3752), the bill would severely limit U.S. participation in international environmental agreements such as the World Heritage Convention, the Ramsar Convention, and the U.S. Man and the Biosphere Program. Deputy Director Galvin testified in strong opposition to the legislation in a June hearing before the Committee on Resources noting that despite assertions, the United Nations does not have the authority to affect land management decisions in the United States. The testimony also made clear that international agreements have not been used to exclude Congress from land management decisions, and do not have the ability to do so. The Senate will consider H.R. 901 and a similar bill (S. 691) in February 1998.

In the appropriations process, a number of amendments were proposed mostly in the House to strike any funding for the U.S. Man and the Biosphere Program. Despite these unsuccessful efforts to remove program funding, the final language adopted by Congress in the Interior Appropriations Act (P.L. 105-83) prevents funding for the designation of new biosphere reserves until new explicit organic legislation is in place that more clearly defines the biosphere reserve designation process and its implications.

The U.S. Man and the Biosphere Program has been heralded as a model for local sustainable development and resource conservation primarily because of the increased cooperation that occurs locally when federal, state, and local agencies, private organizations, and private citizens voluntarily join together in biosphere reserve partnerships. In addition, the program has fostered cutting-edge and cost-effective interdisciplinary research across the country.

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Tradition & Science

Agency culture: A dilemma for natural resource preservation

by Richard West Sellars

Editor's Note: *In October 1997, Yale University Press published* Preserving Nature in the National Parks: A History, *culminating extensive research and writing by NPS Historian Richard Sellars. The book's long-term influence on cultural change within the National Park Service is not yet known; however, it has already succeeded in stimulating dialogue about agency traditions rooted in tourism and the need to increase the role of science in park management today. The following is a summary of some of the book's main themes, concluding with the author's thoughts on how natural resource management could be improved.*

One of the most challenging dilemmas that the National Park Service faces is the difficulty of living up to its rhetoric and its self-image that it is an agency whose primary mission is resource preservation. Although preservation constitutes essentially half of the Park Service's original mandate, natural resource preservation has consistently been underemphasized and conducted with insufficient scientific knowledge. By contrast, from the beginning visitor enjoyment has clearly been the primary management concern. This imbalance has deep historical roots and is closely tied to the dominant perceptions and values long held by national park leadership.

The dominant managerial assumptions of the Park Service are derived in large degree from the demands of recreational tourism and the desire for the public to enjoy the parks. Since the nineteenth century, park managers have had to deal not only with planning, development, construction, and maintenance of park facilities,

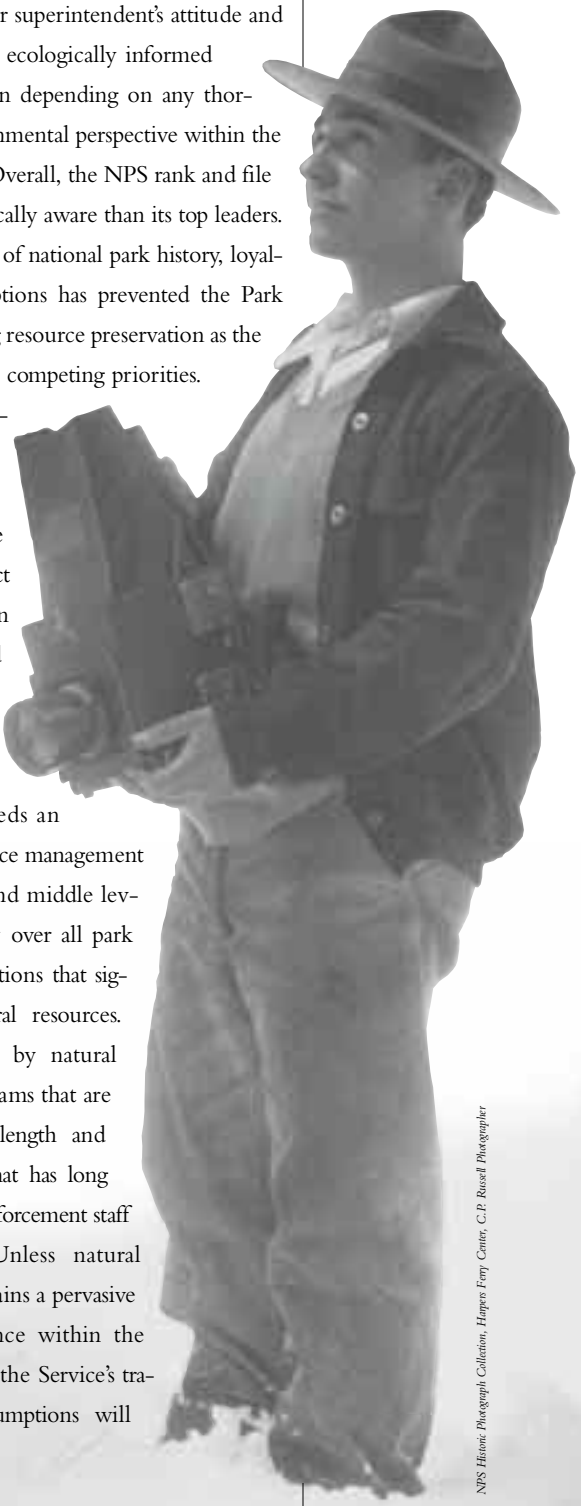
but also with increasingly demanding political, legal, and economic matters such as concession operations, law enforcement, visitor protection, and the demands of tourism interests. Especially since the 1960s, greater involvement in urban parks, greater drug and crime problems, more development on lands adjacent to parks, and the escalating political strength of concessioners and other commercial interests have added to the pressures on managers.

Out of these evolving circumstances, certain shared basic assumptions began to emerge even before the Park Service was created. A close consideration of eight decades of NPS history reveals that the following assumptions have long reflected the perceptions and attitudes of the NPS leadership culture: With the public's enjoyment of the parks being the overriding concern, park management could be conducted with little or no scientific information. Appearance of the parks mattered most. Even management of vast natural areas did not require biological science—the untrained eye could judge park conditions adequately. Moreover, scientific findings could restrict managerial discretion; and park managers needed independence of action. Each park was a superintendent's realm, to be subjected to minimal interference. Similarly, the Park Service was the right-thinking authority on park management—it could run the parks properly with little or no involvement from outside groups. In this regard, environmental activism was often unwelcome; and legislation such as the Wilderness Act or the National Environmental Policy Act should not interfere unduly with traditional management and operations. Overall, then, the dominant NPS culture developed a strongly utilitarian and pragmatic managerial bent. It adopted a management style that emphasized expediency and quick solutions, resisted information gathering through long-term research, and disliked interference from groups inside or outside of the agency.

Primarily concerned with varied aspects of recreational tourism, NPS leadership has been very reluctant to abandon traditional assumptions, even when faced with repeated criticism. Much of the criticism has come from within, especially from biologists from the 1930s on, very often with support from naturalists and interpreters in the parks. Some superintendents have also been openly critical: the uniformed, "green blood" groups within the NPS family have not always been of one accord. Still, advances in furthering the application of science in management have largely depended on the chance of a particular superintendent's attitude and willingness to strive for ecologically informed management, rather than depending on any thoroughly pervasive environmental perspective within the National Park Service. Overall, the NPS rank and file have been more ecologically aware than its top leaders. But in the ebb and flow of national park history, loyalty to traditional assumptions has prevented the Park Service from establishing resource preservation as the highest of many worthy, competing priorities.

Scientific natural resource management does not at all preclude public use and enjoyment of the national parks. To correct the imbalance between tourism management and informed resource management that has existed for 80 years, the Park Service needs an infusion of natural resource management expertise at the upper and middle levels, with line authority over all park and central office operations that significantly impact natural resources. This should be backed by natural resource training programs that are at least equivalent in length and scope to the training that has long been required for law enforcement staff within the agency. Unless natural resource management gains a pervasive and authoritative presence within the National Park Service, the Service's traditional managerial assumptions will prevail, as in the past.

NPS biologist George Wright (shown in Yosemite in 1929 or 1930) briefly succeeded in bringing a biologist's viewpoint to park management. Using personal funds, Wright initiated the first professional wildlife research in the National Park Service. His accidental death in 1936 weakened NPS biology programs during an era of park development and construction.



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